Slavomír Hanzely

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EDUCATION

King Abdullah University of Science and Technology, Saudi Arabia
Applied Mathematics and Computational Sciences, Ph.D. 2020 – present
I work on Optimization for Machine Learning (Stochastic Optimization, Distributed Optimization, Federated Learning); under the supervision of Peter Richtárik.
I am organizing research group seminar.

King Abdullah University of Science and Technology, Saudi Arabia
Applied Mathematics and Computational Sciences, MSc. 2019 – 2020
Relevant courses that I passed: Special Topics in Data Sciences, Special Topics in Machine Learning, Special Topics in Federated Learning, Combinatorial Machine Learning, Probability and Statistics, Advanced Probability, Stochastic Processes, Contemporary Topics in Signal Processing.

Comenius University, Slovakia, Computer Science, BSc. 2016 – 2019
I enrolled superfluous amount of courses – only in 1st year I got 95 credits (recommended amount is 60), including master's courses. Until graduation, I passed 7 Master courses[1] and I unofficially attended (due to exceeding the maximal number of credits) 8 extra courses[2].
Passed all BSc. finals with best grades.

RESEARCH

- A Damped Newton Method Achieves Global $\mathcal{O}\left(\frac{1}{k^2}\right)$ and Local Quadratic Convergence Rate, S. Hanzely, D. Kamzolov, D. Pasechnyuk, A. Gasnikov, P. Richtárik, M. Takáč, 2022
- Distributed Newton-Type Methods with Communication Compression and Bernoulli Aggregation, R. Islamov, X. Qian, S. Hanzely, M. Safaryan, P. Richtárik, 2022, arXiv
- Convergence of First-Order Algorithms for Meta-Learning with Moreau Envelopes, K. Mishchenko, S. Hanzely, P. Richtárik, 2021
- ZeroSARAH: Efficient Nonconvex Finite-Sum Optimization with Zero Full Gradient Computation, Z. Li, S. Hanzely and P. Richtárik, 2021, arXiv
- Lower Bounds and Optimal Algorithms for Personalized Federated Learning, F. Hanzely, S. Hanzely, S. Horváth and P. Richtárik, NeurIPS 2020, talk link here
- Adaptive Learning of the Optimal Mini-Batch Size of SGD, M. Alfarra, S. Hanzely, A. Albasyoni, B. Ghanem and P. Richtárik, NeurIPS 2020 workshop

AWARDS

King Abdullah University of Science and Technology
- MSc. schollarship of USD 70,000/year
- Ph.D. schollarship of USD 75,000/year
- Dean's Award (for two best incoming students in the Ph.D. program) of USD 6,000/year

Vojtěch Jarník International Mathematical Competition

[1] Cryptology, Programming Languages, Probabilistic Methods, Advanced Effective Algorithms, Mathematical Analysis (3), Unstructured Talks on Structures: Chapters in Mathematics for Computer Scientists (1, 2)

[2] Category Theory, Graph Theory, Combinatorial Structures, Markov Processes, Probability Theory, Selected Topics in Data Structures, Selected Topics in Algebra, Matrix Calculus

2017: **8-10th place** in category 1 (first place within Czech and Slovak contestants)

Mathematical Olympiad

2016: Participation at the **International Mathematical Olympiad** (IMO)

2015: **bronze medal** at the Middle European Mathematical Olympiad (MEMO)

WORK EXPERIENCE

Flatiron Institute (link) Jun 2022 – Aug 2022

Research internship, working under supervision of Robert Gower.

Mohamed bin Zayed University of AI (link) Feb 2022 – Apr 2022

Research assistant in the research group of Martin Takáč.

Wincent (crypto trading company) Jun 2020 – Aug 2020

Software engineering/research internship. My goal was to analyze, model and design practical algorithms to optimize resource allocation of the company and implement the developed methods under various constraints.

Mathematical Olympiad 2017 – 2019

- marking problems at the Slovak national round (3 times)
- organizing a day at the national selection camp for the International Mathematical Olympiad – creating the problem set and marking the solutions (3 times)
- preparing new format of selection camp for the International Mathematical Olympiad and creating problem sets for the whole camp (team of 4 people)

Trojsten – volunteering 2016 – 2019

- marking solutions of the competitions for talented high school students (approximately 600 solutions, 150 hours of work)
- organizing camps for talented high school students in Mathematics and Computer Science - I organized 15 camps (4 of them as the head organizer)
- delivering 36 lectures (including a half-day lecture at iKS camp)

SKILLS

Programming

- advanced in Python, PyTorch, Julia, Java, C/C++
- experience with Matlab, R, Mathematica, Haskell, Assembler

Organization

- co-organized 20 camps (4 as a head organizer)
- co-organized 14 competitions (3 as a head organizer)
- co-organizing international tournament in ultimate frisbee: Middle East and North Africa (MENA) club championships 2022

HOBBIES

Sport

- ultimate frisbee
  - representing Slovak national team on the tournaments: European youth Ultimate championship and European youth Ultimate cup
  - playing for the university team on international tournaments: MENA 2019, MENA 2021 (3rd place)
- rock climbing
- in the past: ice-hockey, floorball, karate

Outdoor puzzle races

- participated on 26 puzzle races (including 3 overnigth races in winter)